

ALARMING DESTRUCTION
OF
AMERICAN FORESTS.

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ALARMING DESTRUCTION OF AMERICAN FORESTS.

I AM desirous of drawing attention to a subject of very great importance connected with our North American forests. The question is one that is not only within the line of subjects discussed in 'FORESTRY,' but is one that may be said to be of cosmopolitan interest. My remarks will have especial reference to the present condition of American forests as regards the supply of timber known in this country as Yellow and in America as White Pine—a wood that, besides furnishing, in the past, three-fourths of the building timber of the United States and Canada, has also found a market to a large extent in the British Islands for over half a century.

That the constant drain made upon the forests of America for supplies of this invaluable wood should, at last, occasion a scarcity and compel economists to point to a time, in the very near future, when its total exhaustion may with confidence be predicted, will not surprise those who have known the enormous demands made upon them, but it is questionable if many persons are prepared to realise how near at hand that time is.

Thinking men aware of the facts and desirous of protecting the Forests have tried to forewarn the public of the actual state of things, but have only been ridiculed for their pains. Now, however, this matter has passed beyond the region of conjecture. The timber supply of the United States has been carefully ascertained through investigations made in connection with the census, and that of Canada is so well known, to those conversant with the subject, as to give rise to the most serious apprehensions.

Respecting the United States supply Professor Charles S. Sargent, Director of the Arnold Arboretum, Harvard University, and special agent in charge of Forestry Statistics of the United States Census, made the following statements last year, in a paper read before the Massachusetts State Board of Agriculture:—

'The entire supply (White Pine) growing in the United States and ready for the axe, does not to-day greatly, if at all, exceed 80,000,000,000 feet, and this estimate includes the small and inferior trees, which a few years ago would not have been considered worth counting. The annual production of this lumber, is not far from 10,000,000,000 ft., and the demand is constantly and rapidly increasing.

'The publication of these facts a few months ago has greatly increased, and in some cases more than doubled, the value of Pine lands; and it does not require any particular powers of foresight to be able to predict that the price must advance to still higher figures. Enough is now known to permit the positive statement that no great unexplored body of this Pine remains; and that, with the

exception of the narrow redwood belt of the California coast, no North American forest can yield in quantity any substitute for it.'

On another occasion, in an article published in the *North American Review*, he says, respecting the redwood :—

'The belt of redwood forest along the California coast has already suffered severely at the hands of the lumberman, and many of its finest and most accessible trees have already been removed. A large amount of this valuable timber is still standing—less, however, than has generally been supposed ; and at the present rate of consumption the commercial importance of this forest will have disappeared at the end of a few years more.'

And again, in the same article, as if to emphasize his remarks respecting the disappearance of the White Pine, he says :—

'Fatal inroads have already been made into the great Pine forests of the North Atlantic region. Its wealth has been lavished with an unsparing hand ; it has been wantonly and stupidly cut, as if its resources were endless ; what has not been sacrificed to the axe has been allowed to perish by fire. The Pine of New England and New York has already disappeared. Pennsylvania is nearly stripped of her Pine, which only a few years ago appeared inexhaustible. The great north-western Pine states, Michigan, Wisconsin, and Minnesota, can show only a few scattered remnants of the noble forests to which they owe their greatest prosperity, and which not even self-interest has saved from needless destruction.'

This is the condition of the United States forests as described by a gentleman who was specially engaged by the Government on account of his pre-eminent ability and high character, to thoroughly investigate the subject, made two years after all reports had been given in, when any errors in calculations, if such existed, would be fully known ; and what does it show but that there was then barely eight years' supply of this timber ? Since then, another year's cut—said to be the largest ever made—has been removed ; so that to-day there is standing in the forests less than seven years' stock of this timber, not only that of merchantable quality, but of all kinds, good or bad, large or small, old or young—timber convenient and accessible, as well as that more remote and inaccessible. So serious, indeed, are the facts that actually, before another Census Report could be made, there would not be a foot of this timber to take into account if the present reckless cutting should continue !

And now if we turn to Canada, what do we find is the condition of things there ? It would, of course, be easy to give the present writer's own views, or those of his father, Mr. James Little, of Montreal, to whose writings—probably more than to any other cause—may be ascribed the present interest in the subject of forestry in America ; but instead of this we will transcribe from the valuable report on the Canadian Forests, submitted to the Government some five years ago, by the Hon. H. G. Joly (Seigneur, late Premier of the Province of Quebec), as Member of the Dominion Council of Agriculture—a report which is replete with most valuable information and suggestions.

In this report we find, under the heading, 'State of our Forests,' among other remarks made, the following :—

'They (the forests) contain,' says Mr. Joly, 'a great variety of timber, but I will call your attention principally to the Pine and Spruce, as they form nearly all our export to Europe, and are really the produce of our forests; while the hard-wood we export, especially the fine Oak, nearly all comes at present from the Lake regions of the United States, as we have very little of our own left.'

'For some years past,' continues Mr. Joly, 'the idea has been gaining ground among men who take an interest in the future of the country, that our great Pine and Spruce forests are getting rapidly exhausted, and that before long a trade which enables us to export annually over twenty million dollars' worth of timber, will shrink down to wofully reduced proportions.'

'Thinking men have begun to sound the note of alarm, and we owe it to them, but especially to ourselves as a nation, to try and find out how far their provisions are likely to prove true.'

Then, after showing what difficulty the inquiry presents, he says:—

'Let us now try and make an inventory of the timber resources of the Dominion, beginning in the west. On the Pacific shores of the Dominion, in British Columbia, the bountiful gifts of Providence are still stored up for us, and the forests have scarcely been attacked by the lumberman. How long these treasures will last us, and what advantages we shall derive from them, depends in a great measure upon ourselves.'

'From the Rocky Mountains to the Province of Ontario there are scattered here and there certain tracks of well-timbered land, but they are the exception. That timber will be required for the local wants of the people who are now only beginning to settle on our fertile prairies.'

(It is now known that this prairie country will require thousands of millions of feet in excess of its own stock!) The report goes on to say:—

'The great forest of Canada, *par excellence*, is spread over that vast territory watered by the Ottawa, the St. Maurice, the Saguenay and their tributaries, over one hundred thousand square miles in extent: before drawing your attention more particularly to it, I will mention our remaining timber limits, that cannot compare with it either for size or resources. They are found in the Georgian Bay country; the Muskoka and Nipissing regions; the Eastern Townships of Quebec and south shore of the St. Lawrence, to the Gulf; the region on the north shore of the St. Lawrence, from the Saguenay down to the Bersimis, and, perhaps, still lower down, as far as Mingan; and the country watered by the St. John, the Miramichi, the Restigouche and their tributaries. Those limits, in many places, are scattered and isolated; they have, with few exceptions (such as the Bersimis at the east, and some newly-discovered Pine tracts at the west, on Lake Superior), been worked for a long time, and cannot be expected to supply, much longer, any considerable quantity of first quality Pine, but they still contain an immense quantity of Spruce, principally in the east, sufficient for a great many years' supply, if carefully worked and protected. The Spruce, unlike the Pine, reproduces itself with wonderful ease, and a good Spruce country, carefully worked, where you leave untouched all the trees under a certain size, say twelve or thirteen inches at the foot, can be worked and worked again after a very few years' rest, I might say almost for ever.

'As a match to the timber wealth of British Columbia in the west, there have been lately discovered at the extreme east of British North America, in the recent explorations through the hitherto unknown interior of Newfoundland,

magnificent forests ; let us hope that, before long, they will take their place, among our Canadian forests.

' I will now return to the *Great Canadian Forest*, our great Pine country, with its wonderful network of streams, and its three great arteries, the Ottawa, the St. Maurice, and the Saguenay.

' Does it begin to show signs of exhaustion ? Is it possible that, in such a short time, man has been able to make an impression upon those millions and millions of acres of forest ?

' If there is no sign of exhaustion, what is the meaning of the complaints that come over the seas to us, every year louder and louder, about the falling off, in quality and size, of our Pine, hitherto considered as the finest in the world ? Are they no more than the ordinary complaints of the purchaser ? I leave it to our lumbermen to answer.

' But, before they answer, I will ask them why are they compelled to go now to such enormous distances for the really superior quality of Pine they used to get so much nearer home a few years ago ?

' Look at the map of that great region, and you will see how little of it is now left untouched. On the Ontario side, all the most accessible tributaries of the Ottawa, the Madawaska, the Bonnechère, Mississippi, Petewawa, and others, have been worked for years ; the lumbermen are now round the eastern end of Lake Nipissing, with the Matawan for an outlet to the Ottawa, that can only be reached by a land road ; they are still much further north, on the shores of the Montreal River.

' On the Quebec side, they have nearly reached the head waters of all the great tributaries of the Ottawa, the Rivière Rouge, the Rivière du Lièvre, the Gatineau with the Jean de Terre and Lake Kakebonga and the Lac des Rapides ; they are now working three hundred miles higher up than Ottawa, as the river runs, on Lake Temiscamingue and the Keepawa.

' On the St. Maurice, they are as far up as Lake Manouan, on the western side of the river ; its great tributaries, on the eastern side, the Bostonnais and the Rivière Croche, have been deprived of the greatest part of their fine Pine ; it is now sought at the head waters of those rivers.

' As for the Saguenay region, it still contains a good deal of Spruce, but there is only a limited extent of Pine still untouched, or nearly so, south of Lake St. John, between the Metabetchouan and the head waters of the Rivière Croche near Commissioners Lake and Bouchette's Lake. There is a little Pine left north of Lake St. John, and a certain quantity on the River Shipsha, and in the Lower Saguenay on the Ste. Marguerite and Petit St. Jean, etc. As for the large rivers that flow into Lake St. John, the Chamouchoua, Mistassine and Peribonca, the Pine that was on the lower part of those rivers has been nearly all cut, and the remainder of their course from their distant northern sources, is through an immense burnt up wilderness, where the vegetable soil has been consumed by fire.

' That huge tract of lumber country, between the Ottawa and the St. Maurice that separated (or rather appeared to separate) the lumbermen working on those two rivers, by what seemed an inexhaustible and endless forest,—that huge tract is tapped through and through, and the Ottawa lumberman has met the St. Maurice lumberman on the shores of Lake Manouan. A glance at the map will show what that means.

' Those who think that there will never be an end to our timber may say : " We can still go north."

' Not very far north. From Lake Temiscamingue and the Montreal River, on the shores of which the lumberman is plying his axe at this very moment, they cannot go very far north before they strike the height of lands dividing the St. Lawrence water-shed from the Hudson's Bay, and the country is generally poor

and barren. There is still some fine Pine there, in what quantity is not known, along the head waters of the Ottawa, but it cannot be brought down to market, at least as square timber, until very extensive and costly works have been executed for the improvement of the great Rapide des Quinze.

'Once over the heights that divide the St. Lawrence and Hudson's Bay watersheds one from another, the streams, without which timber cannot be brought to market, all run to the north to James's Bay and Hudson's Bay. Those regions are generally represented as a huge barren wilderness with little timber and that mostly of a stunted growth. There is, doubtless, some good timber, but the idea of driving it down the Rupert, the Notway, the Harricanaw and all those long rivers, to the shores of James's Bay, and taking it home down Hudson's Bay, eight hundred miles long and through the dangerous Hudson Strait does not appear very practicable. Whatever timber is there may as well be considered as out of our reach for the present. In the course of time the scarcity of timber fit for export may become so great as to encourage the lumbermen to turn their efforts in that direction, but that region may safely be left out of our reckoning on the present available timber supply.

'In a very short time since the beginning of this century we have overrun our forests, picking out the finest Pine, and we have impoverished them to a serious extent, and, what makes it worse, impoverished the country too, for, owing to the force of circumstances, which we shall consider later, our timber export trade has not given Canada such a return as she had a right to expect. There still remains to us a great deal of Spruce and second-rate Pine which, for generations to come, will be in excess of our local wants, if we are careful, but the really fine Pine, required to keep up our great timber export trade to its present standard is getting very scarce and inaccessible, and I fear we must prepare for a sudden and considerable falling off.

'While every one admits the great value of the timber trade to Canada, no one would complain, in a new and scarcely peopled country like ours, if the finest Pine forests were to disappear and make room for fine farms. But, unfortunately, we cannot comfort ourselves with such hope, for the soil of the Pine region is not generally favourable to agriculture, and when the Pine disappears the farm does not very often take its place.

'Men are the same all over the world. They never set much value upon the free gifts of Providence, and disregard them in proportion to their abundance. Timber, fish, and game have been destroyed everywhere in the same way. When what appeared to be inexhaustible becomes exhausted, it then begins to be valuable and we must pay for our experience.

'Our neighbours in the United States have applied to the destruction of their forests their almost superhuman activity and energy, and they are now worse off than we are for timber. But their eyes are being opened. The President, in his last message, has earnestly drawn the attention of Congress to the subject, and the following quotation from the last annual report of the Secretary of the Interior, shows how thoroughly they appreciate the gravity of the situation :—

"The rapidity with which this country is stripped of its forests must alarm every thinking man. It has been estimated by good authority, that if we go on at the present rate, the supply of timber in the United States will, in less than twenty years, fall considerably short of our home necessities.

"It is time that we should turn our earnest attention to this subject, which so seriously concerns our national prosperity."

And after referring to the older settlements of the Province of Quebec being painfully bare of trees, Mr. Joly sums up his Report on 'the present state of our forests,' by saying 'that it is very far from satisfactory and leaves much room for improvement.' But in his very

able Report he does not stop short at 'the state of the forests,' but shows his clear insight into everything appertaining to the subject by accounting for the facts of a continued over-production of wood side by side with rapidly receding and diminishing supplies. In alluding to the over-production he says:—

'There cannot be a greater waste of any marketable commodity than by over-production. It is unavoidable, as the extraordinary success of any given branch of industry is certain to produce it; but generally it does not take long after its fatal effects are felt before the evil cures itself. Unfortunately our timber trade is an exception to that rule. In the face of a glutted market we persist in our over-production, as if we expect to relieve the market by glutting it still more.

'Over-production in the timber trade is a greater evil than in any other business, as the raw material cannot be replaced for generations. With a few exceptions, the lumbermen of Canada, as a rule, cannot stop their production of timber; they can scarcely curtail it. Without meaning any disrespect to a class of hardworking, honourable men, I think they may be considered (with the few exceptions above alluded to) as not being *free agents*.

'Their relations with the advancers of money, the banks, the brokers, the purchasers in England, are of such a complicated nature that it is difficult for them to realise at any time what their financial position is. They know they are dependent upon others; they have been so from the beginning, and they continue so until at last, after long years of harassing, desperate work, with both body and mind worn out, they find themselves poorer than when they began. The lumbermen have indicated the remedy for over-production, but have not been able to apply it. Each one is ready to admit that he (or rather his neighbour) is cutting too much timber, and that he would make more profit with a less quantity.

'It is bad enough that so much money should be wasted away in cutting down timber for no good, but if there were an inexhaustible supply of timber on the Crown lands, the Government, receiving a larger amount of timber dues than it might otherwise, would not be likely to interfere to protect the lumberman against himself. But our forests are getting rapidly exhausted and their produce sacrificed, and it is a loss for Canada and for the lumberman.

'Of course the first result of a decrease in the production of timber, in so far as the Government is concerned would be a corresponding decrease in the Crown lands receipts. I won't call it the revenue, because there is something deceptive in the use of that word. We are apt to fancy that it always means (as Worcester has it) the income or annual profit received from lands or other property. It is nothing of the kind in this case. We have not been spending the income or annual profits of our forests, but the forests themselves; not the interest, but the capital.'

It will be observed in the foregoing report that Mr. Joly speaks of some timber on the head waters of the Ottawa not available, at least as square timber, till improvements are made on the Rapide des Quinze, and in a few lines to the present writer, as he was leaving home, he says, after alluding to his Report as having been collected at different reliable sources, 'since then they' (the lumbermen) 'have rendered the Rapide des Quinzes practicable, and are drawing on that last untouched reserve.'

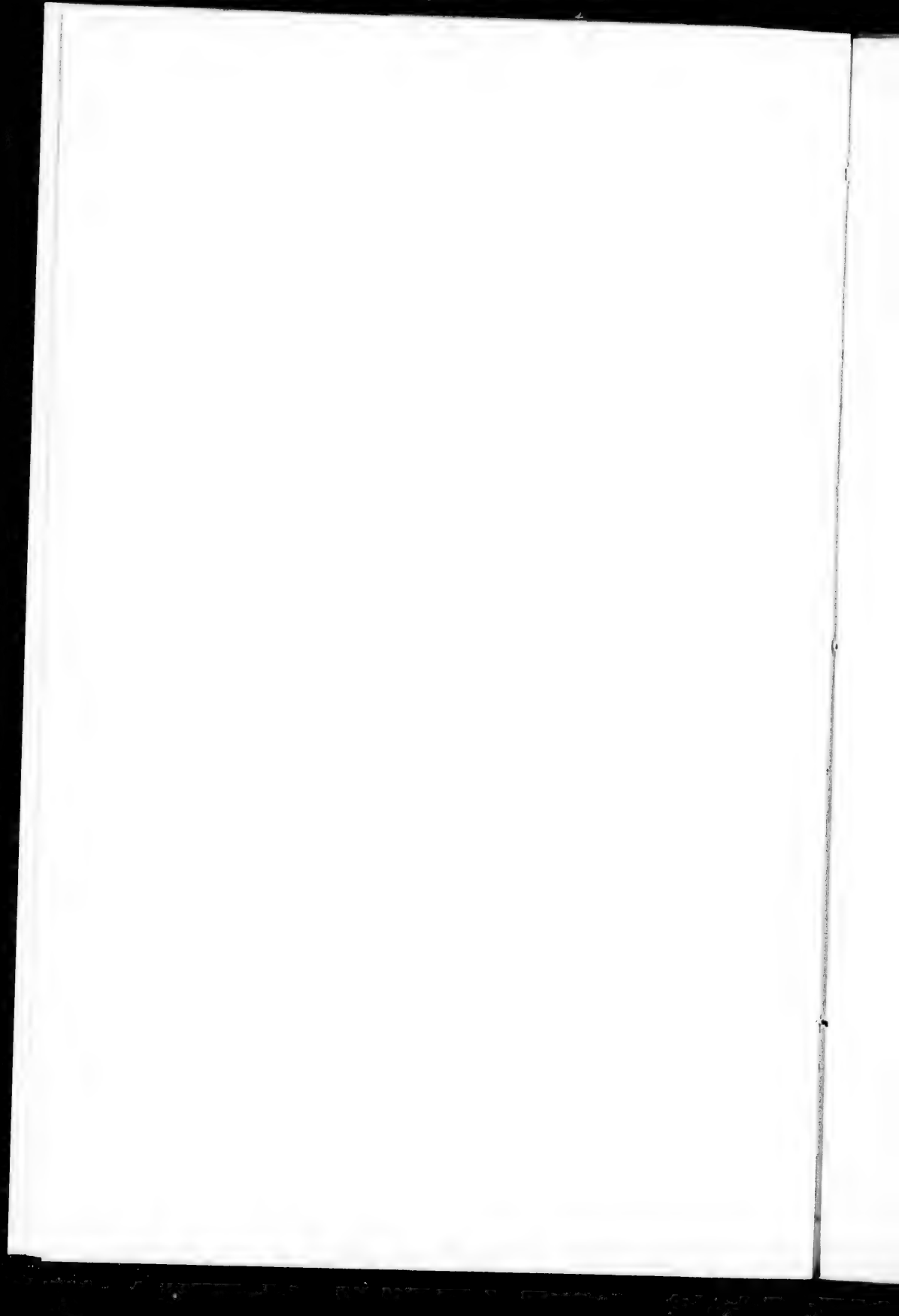
The foregoing is a picture made some five years ago of the condition of the Canadian forests by a gentleman thoroughly conversant with

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the timber trade—an enthusiast on the subject of forestry, and having recourse to every available source of information on the subject. What can we gather from his statements but that Canada is almost in the same deplorable condition as the United States as regards its stock of valuable Pine timber? It may be here worthy of mention that, though Professor Sargent, in his remarks, made little reference to the condition of the Spruce forests of his country, yet an examination of the Forestry Bulletins published by his Department, shows that the existing amount of Spruce timber will have disappeared in as short a time as the Pine, and although Mr. Joly appears to consider that the Spruce forests of Canada would supply the home consumption for a great many years, yet it would supply for but a limited period the thousands of millions of feet that will be required by the United States when it has parted with its White Pine and Spruce timber, and when it has no other source of supply for this description of wood than Canada—and from no other source can it be obtained so cheaply as it can from Canada—so that if we act with prudence, and husband our wealth of timber, there is a great future in store for our country. But it is not by using our efforts to get rid of our timber resources in the reckless manner we have been doing in the past, but rather by restricting the cutting, by more careful manufacture, and by considering every growing tree as so much capital, not to be parted with without valuable consideration, that we shall accomplish our object. For this result we shall not have long to wait, for though, as appears above, it would take nearly seven years to entirely exhaust the White Pine timber of the United States, by far the largest portion of this timber lies within the extreme Northwest, contiguous to that great prairie world which is now being so rapidly developed, and which will require all the timber that grows there. In fact, the population of the prairie districts are even now planting trees to provide for their future wants. The only section of the White Pine timber country that now competes with Canada in the markets to the south of us, where the bulk of this timber is consumed, is Michigan; and this State, according to the most authentic information, would not be able to continue the cut of the past season for more than four years longer. Moreover, a knowledge of these facts has so advanced the price of standing Pine in that State, that the price of the manufactured article must continue to advance very rapidly for the future, as there is no other wood in America or elsewhere that is applicable for so many purposes and of such general use.

It has often been said that there would be found a substitute for wood; if so, it is quite time the discoverer brought it forward, for up to the present the ingenuity of the 'everlasting Yankee' has not even touched the subject. Notwithstanding the fences of wire, the use of iron in building, the terra cotta and straw lumber, the consumption of our old friend wooden lumber increased nearly 50 per cent. in the ten years from 1870 to 1880, the former being

12,755,543,000, and the latter 18,091,356,000 feet, and though it has always been claimed that iron and lumber keep together—cheap lumber accompanying cheap iron, we now find iron so low, that producers claim they are at the lowest rung of the ladder, while lumber has advanced in America in three years fully 50 per cent., with every prospect of still further increase; and yet we are informed that we are within seven years of the time when the supplies of White Pine and Spruce (which are, in the north, the great stock of this indispensable material) must cease; and this is not the statement of interested parties, which might be open to suspicion, but of those specially employed by the Government of the country to ascertain the true condition of the forests.

It will no doubt be said, 'What of this? there are still vast forests in the south to be drawn upon.' This may be a matter of great value to the south, but to the people of the north, who now make and use four-fifths of the sawed lumber produced, it is a matter of the most serious importance. The value of the lumber now produced in the north exceeds 300,000,000 dols. a year as it falls from the saw—that it is all wanted there is no better evidence than the fact that demand and price are both increasing—and to replace it would cost from two to three times this sum, even if the same lumber could be obtained elsewhere, which it cannot be; and 600,000,000 dols. a year would not replace it; so that in a very short time this section of the country, instead of having a great and profitable industry advancing and helping every interest, will be called upon to pay out hundreds of millions of dollars annually for such material.

But even our southern friends are interested with us in the preservation of this timber, as the uses to which it is applied are so different from theirs that large quantities are annually sent south, and the Government of Canada, recognising this fact, while imposing a retaliatory duty on the White Pine, admits Southern Pine duty free. It is further to be hoped that southern governments may learn a lesson from the prodigality of the north, and preserve their most valuable timber for the benefit and welfare of the community, instead of giving it away to timber-land speculators, or to such an ignorant race of destructionists, as have gobbled up the timber of the north, or they too will soon be dispossessed of one of the greatest blessings that Providence has vouchsafed their country.

When people talk, as they sometimes do, of the inexhaustible forests of the south, they little know the sawing capacity of the northern mills, which could in twelve months' time convert the whole merchantable Pine of the states of Georgia or Alabama into lumber, and be but six months in using that of Florida or either of the Carolinas. In fact, the mind can hardly realise the enormous consumption of timber going on in the United States; but some idea may be formed of it from a knowledge of the fact that the single city of Chicago received last year over one million St. Petersburg

standard hundreds of sawn timber, principally White Pine, an amount about equivalent to the entire receipts of sawn wood of all kinds by the United Kingdom during the same period.

The entire annual consumption of wood for building and manufacturing purposes can now be but little short of fifty million loads. This of itself must show the enormous destruction of forests going on in the United States, and the serious question a loss of its timber must have upon its future welfare. It consequently becomes, in the writer's opinion, the greatest economic question of the day—one before which all others sink into insignificance in comparison; for nothing can be more true than the remarks of the *Glasgow Herald*, in reviewing an article on the subject in 1876, when it said: 'The knowledge we have gained of a dearth of cotton may help us to appreciate "the terribleness of the calamity that would be experienced from a dearth of timber" in Canada and the States. In point of fact, both Canada and the States are busy sawing from under them the high-reaching, fortune-making branch, on which, like conquerors, they are now sitting and overlooking the world.'

When we consider the importance that an abundance of the most valuable timber has had on the past welfare of the country, and come to realise what 'a dearth of timber' means, all will readily see that the foregoing is by no means an overdrawn statement. If we also consider the fact, that every human being in the country must have timber in some form or another for his protection or comfort—that our shelter is of timber, the floors we walk on, the chairs we sit on, the tables we eat from, the conveyances we use—even our cradles and coffins being of wood—we can readily see how overwhelmingly important is this great question of timber supply. Then too, the numerous industries engaged in the various processes concerned in the use of this material and the hundreds of thousands of labourers directly depending thereupon for their livelihood prove that timber is an article required by every individual of the whole community, and it must be conceded that every means should be adopted for its preservation and protection.

While England which has cheap coal, cheap iron, and cheap labour, and which can get her supplies at the cheapest rates from the north of Europe, annually expends nearly 100,000,000 dols. for timber, one can readily recognise how much it would cost the United States (a country that has yet to be built up) to import its lumber from any foreign source. It has been estimated that it would take the entire sailing tonnage of the world to convey the amount of timber annually consumed in America from any foreign lumber port. But where to get it at any price in the enormous quantities used in that country is a question that would puzzle those best informed on the subject to determine.

The foregoing fully justifies the remarks contained in a leader of

the *New York Sun* when urging Congress last Winter, in the interest of the country, to remove duties from Canadian lumber. In this leader it said:—

‘No more vital question can come before Congress. Perhaps no Congress has ever been called on to decide an economic question of greater moment.’

The Province of Quebec has, to some degree, acted prudently by restricting the cutting of Pine trees below a certain size—12 inches at the butt on the stump; and the policy of charging the same timber dues on small logs as on larger ones, has similarly had the effect of curtailing the cutting of the small Spruce trees. But in the United States even this small measure of wise economy does not operate, as all trees in that country, both large and small, are cut.

The word ‘destruction’ has in the preceding remarks been used advisedly. American forests are not exploited as in Europe. To remove a large trunk, sometimes fifty smaller trees are cut down, and this ruthless denudation is resorted to simply to save a small amount of extra labour; whereas the trees needlessly felled and the tops and branches of the one actually required, are left to rot on the ground, or what is worse, to lie as fuel for the flames when forest fires are raging!

And respecting forest fires, which the lumberman is constantly parading as an excuse for his reckless cutting of timber, it may be said that, from the condition in which the woods are left during and after his operations, it would appear to require almost the interposition of Providence to prevent their burning, as they often do, in case of an accidental spark, and of course, when they get control, carrying devastation around them; but with proper legislation, and an enlightened public opinion to lead Americans to look upon the tree as one of his best friends, there should be but little danger from fire.

Moreover, if the timber-land owner would annually expend the same percentage he is willing to spend to insure other property of like value, towards putting his timber property in a safe condition, he could so place it that it would be difficult to set it on fire, so as to do any serious injury.

The writer has not adverted to the climatic or other effects claimed to be of a serious character which denudation of the forests are said to bring upon a country. These matters he leaves to the elucidation of scientific minds that better understand the subject, and can properly treat it. The commercial aspect of the question is all he claims to possess a knowledge of, and this he believes is of such paramount importance that it should arrest the attention of all thinking people.

They be said that the active American mind, always ready with expedients, would be alive to its importance; but the truth is that the American mind has, up to the present time been devoted towards getting rid of the timber, and in this, as in most other efforts, it has been eminently successful; so the question is now how to change the

current of public opinion in America from that of antagonism against trees to that of appreciation of them, and in the writer's opinion this can soonest be brought about by constant agitation and reiteration of the true state of the facts. The formation of Forestry Associations and the institution of 'Arbor Days,' are having excellent effects, and will no doubt be productive of a great amount of good in this direction.

To the American, whose great aim has been how most quickly to get rid of the forests which until recently, were the great obstacle in his way in providing himself and family with a home, the familiar refrain of 'Woodman, spare that Tree' sounded as the hollowest mockery; to him the rapid stroke and sharp ring of the woodman's axe, or the thud of the forest monarch as he struck the earth in his fall, were sounds far more pleasing to the ear. And it is only since the railways have spanned the continent and supplied the knowledge that his country is on the whole a prairie, and a treeless one rather than a wooded one—that the timber is only peculiar to the coasts, lakes, and watercourses, while the vast interior is bare of timber—that such an idea has had a chance of claiming his attention.

Respecting this aspect of the country, Professor Wm. H. Brewer, in the Statistical Atlas for the Census of 1870, writing of 'The Woodlands and Forest Systems of the United States,' says:—

'A glance at the map shows large regions either treeless or very sparsely wooded, and that it is possible to cross the continent from the Pacific to the Gulf of Mexico without passing through a forest five miles in extent, or large enough to be indicated on the map.'

And he might also have said from the Canadian boundary line to the same point, for he says:—

'The woodlands of the east are separated from those of the west by a broad treeless plain from six to fifteen degrees wide.'

And again, when mentioning the 'sawed lumber' product as 12,756 millions of feet, valued at 210 millions of dollars, he says:—

'Yet this gives but an imperfect idea of the part that wood and timber play in the wants and industries of the people. The great majority of all the buildings of the country are made of it, and it is an essential ingredient of nearly all those which are nominally of brick or stone. It, too, is the principal ingredient in the vast majority of ships, boats, cars, carriages, etc., for transportation; so too of our furniture, and of most of the tools and implements in use.'

'It is the sole household fuel of two-thirds of the inhabitants of the country, and the partial fuel of nine-tenths of the remaining third. For making steam, reducing metals and the various processes in the arts it is used in immense quantities. Entering as it thus does into the multiform uses of civilization, in every period of life from the cradle to the coffin, a constituent of so many of our manufactures, and nearly all our structures, from a match or tooth-pick to the railroad or steamship, it forms an element in our needs and our industries which cannot be reached by statistics nor expressed by figures.'

And even then he threw out the hint which has since been realised, when he said:—

'That our large timber, suitable for sawing, is diminishing, there is no question ; nor is there any question that this will go on until the price so much rises that new timber will be planted as the old is cut, and that a part of this diminution is due to prodigal use and needless waste.'

Also referring to this same time (1870), Dr. Franklin B. Hough, Chief of Forestry in the Department at Washington (from whose valuable writings on the subject of Forestry in America the writer would have had pleasure in quoting liberally had not the length of this article begun to alarm him), in his 'Third Report on Forestry,' p. 285, says :—

'The United States, according to the last census, 1870, had an area of woodlands amounting to about 380,000,000 acres of land, belonging chiefly to individuals. It was estimated that 10,000,000 acres are destroyed annually, and that not more than 10,000 acres are planted.

'It is only in the United States the devastation of the forests is going on upon an immense scale, and made in some sense the order of the day.'

Since then thirteen years have gone by, during which time the most terrible slaughter of the forests has been kept up. The increase of cutting for commercial purposes has more than doubled ; so that, assuming these figures as correct, there can now remain but little more than one-half this area of woodland, for although, owing to five years of financial depression in the United States, from 1873 to 1878, the consumption of wood may have fallen off during that period, since then the onward stride has been so prodigious that the North-western States more than doubled their production of sawn woods from 1878 to 1882.

The 3,629 millions of 1878 become 7,552 millions in 1882, while a similarly large increase took place in the Southern States, so that the total cut of the United States must be now probably 50 per cent. greater than when the census was taken for 1880 ; but, considering the increase only 40 per cent. greater, we have for the entire cut of sawn lumber 25,000 millions of feet board measure ; that is, more than 12,500,000 St. Petersburg standard hundreds, or 40,000,000 loads of sawn wood alone ; and if to this is added 25 per cent., to include the squared, flatted, and round timber, the wood used in shingles, pulp, etc., and the railway ties, fenceposts, and other forest products, we have a total of over 50,000,000 loads of wood used in commerce, besides the enormous amount used for fuel, etc., which was valued in 1880 at 321,962,000 dols., and which would to-day be worth not less than 400,000,000 dols. To obtain this enormous amount of material must have required the selection of the best trees from fully 20 million acres of land, equal to a strip of land 10 miles wide, reaching from England to America, or more than one-fourth the area of the British Isles.

These figures give some idea of the extent of territory denuded annually, and I will now show the present value of this material.

The value of 'sawn lumber' returned for census year 1880 (actually

the cut of 1879) was 233 million dols. ; adding 40 per cent. to this for increase since then makes this amount 326 millions, and an increased value at primary points of 50 per cent. makes 489 millions, or, say, in round numbers, 500 million dols., or £100,000,000 for sawn wood alone. Then, adding 20 per cent. of this value for other wood products mentioned above, equal to 100 millions, and the value of the firewood 400 millions, the whole makes 1,000 million dols., equal to £200,000,000 as the present annual value of the forest products of the United States at primary points of production or manufacture.

Moreover, the production and consumption are steadily increasing, while the supply is as steadily diminishing ; and when it is seen that this manufacture now stands at the head of the manufactures of the United States in value, as it has hitherto done in the number of operatives employed, and that the White Pine, which has been in the past, and is still, the most important factor in this great industry, is rapidly approaching extinction, the writer feels that he cannot be far astray in considering this, as regards America, what he has already called it, the most important economic question of the day, one before which all the others sink into insignificance in comparison.

Again, considering why Canada is especially interested in this matter, and the advantages she may derive from prudently conducting her lumbering operations, and husbanding her timber till her more wealthy neighbour to the south of her may require what she has to spare, it may be remarked that it is that section of the country nearest to her (which now uses nearly the whole of the supplies of White Pine and Spruce) which will be soonest short of timber, and also, in addition to what it may receive from Canada, it will no doubt be compelled to make heavy drafts on the Southern States for its Pitch Pine, called in America Yellow Pine, as American White Pine is, by some commercial absurdity, called in England Yellow Pine ; while the writer is informed that the White Pine of Great Britain is not a Pine, White, Red, or Yellow, but a Spruce.

This Southern Yellow (Pitch) Pine, however, owing to this confusion in names, is thought by some to make a substitute for the Northern White Pine ; but this cannot be, for the woods are most dissimilar. The Southern Pine, although an excellent wood for many purposes, is hard and resinous, about the same weight as White Oak, or nearly double that of either the White Pine or Spruce.

The White Pine, Spruce, Hemlock, and Cedars form the bulk of the light woods of America, and it is probably owing to this characteristic that the White Pine and Spruce, notwithstanding their original great abundance, are so rapidly becoming exhausted, for, being light and easily floated, they are taken with but little difficulty from the most remote sections of the country, wherever water-courses exist.

It might be well to remark, as opinions appear to prevail in some quarters that the area of the White Pine in Canada is of very great extent, that it covers but a limited area. That this is the fact is shown by Dr. Bell, Assistant Director of the Geological Survey of Canada, in the Report of the Survey for 1880, in which he says, respecting the White Pine—'Yellow Pine' of the British Markets—*Pinus strobus*, L.

'This and the next species have so nearly the same limit throughout the greater part of their northward range, that they are represented on the map both by one line. The Red Pine, however, does not extend so far east as the White, so that in this direction the line represents only the boundary of the latter. Contrary to popular belief, the White Pine is confined to a comparatively small part of the Dominion, as will be observed by an inspection of the map. Its northern limit in Canada extends east as far as Mingan, while to the west it does not reach Lake Winnipeg, or Red River. It reaches its lowest latitude opposite to Ottawa City, about 48° , and its highest, about 52° , in the Lonely Lake region. It occurs in favourable situations throughout the greater part of Newfoundland, but it is of best quality and most abundant along the Gander and Exploit Rivers on the north, and the Humber on the west side of the island. On the last-named stream, I have cut into the centres of several good-sized trees, and found the wood of excellent quality. In the country immediately north of Lake St. John, the Messrs. Price have cut large quantities of fine White Pine timber for export. When coming from Lake Mistassini to Ottawa, by way of the Gatineau River, Mr. Richardson, of the Geological Survey, first met this species at 230 miles north of that city. It occurs of fair size on the head waters of all the principal branches of the Moose River, and in former times is said to have extended considerably further north along these streams; but having been entirely destroyed by extensive forest fires, it has been replaced by other trees. Owing to these fires it is now very scarce in most of the region north of Lake Superior, but small groves of it have been observed as far north as represented. It is scattered over the country between Lake Superior and the Winnipeg River and around Lonely Lake, but it is of rather small size. In approaching Lake Winnipeg the limiting line of this tree curves south-westward, and crosses the Winnipeg River about fifteen miles above Fort Alexander, and then runs south to the United States at some distance east of Red River.'

In the foregoing remarks the writer has given the views of those in America in whose opinions he has the greatest confidence; and however much they may conflict with the preconceived notions of others, he believes them to be true.

But even if it took seventeen years instead of seven to use up the whole of the White Pine of the United States, or fifty years instead of twenty to use up the whole forests, the matter would have been sufficiently serious to justify him in calling public attention to the facts.

WILLIAM LITTLE.

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